

What is claimed is:

1. A system for testing message flow in an enterprise application integration (EAI) message bus environment, comprising:

- a test controller;

- a message collector, comprising:

- a first configuration interface coupled to receive first message selection criteria from the test controller;

- a first receiver coupled to receive messages transmitted among enterprise applications on the message bus; and

- first means for comparing data elements in the messages received through the first receiver against the first message selection criteria whereby received messages which meet the message selection criteria are identified; and

- a message validator, comprising:

- a second configuration interface coupled to receive message validation criteria from the test controller;

- means for comparing the messages identified by the message collector against the message validation criteria; and

- a first transmitter for transmitting results of the comparison to the test controller.

2. The system of claim 1, further comprising a message template database comprising a plurality of test message templates selectable by the message collector whereby the first means for comparing compares a selected message template against messages received from the message bus.

3. The system of claim 2, at least one message template being derived from a previously received and stored message.

4. The system of claim 1, further comprising a message generator, comprising:

a third configuration interface coupled to receive test messages from the test controller; and

a first message transmitter, responsive to the third configuration interface, coupled to transmit the test messages onto the message bus.

5. The system of claim 4, further comprising a message template database comprising a plurality of test message templates selectable by the message generator to generate test messages for transmission onto the message bus.

6. The system of claim 1, further comprising a message responder to simulate a predetermined enterprise application, comprising:

a fourth configuration interface coupled to receive second message selection criteria and response rules from the test controller;

a second receiver coupled to receive messages transmitted among enterprise applications on the message bus;

second means for comparing data elements in the messages received through the second receiver against the second message selection criteria; and

a second message transmitter, responsive to the second means for comparing data elements, coupled to transmit the test messages onto the message bus in response to messages which meet the second message selection criteria;

wherein the message responder appears to enterprise applications on the message bus as the predetermined enterprise application.

7. The system of claim 6, wherein the simulated predetermined enterprise application is unavailable to participate in testing the message flow.

8. The system of claim 6, wherein the simulated predetermined enterprise application would introduce undesirable effects as an active participant of the testing of the message flow.

9. The system of claim 6, further comprising a message template database containing a plurality of message templates selectable by the message responder whereby the second means for comparing compares a selected message template against messages received from the message bus.

10. The system of claim 6, further comprising a message template database containing a plurality of message templates selectable by the message responder to generate messages for transmission onto the message bus.

11. The system of claim 1, further comprising a message tee coupled to the message bus and transparently interposed between first and second off-bus, point-to-point applications, the message tee responsive to control signals from the test controller and having at least one operating mode selected from a listen mode, an intercept mode and a pass-through mode.

12. The system of claim 11, the message tee comprising:

- a first translator, operable in the intercept and listen modes, for translating messages in a point-to-point format between the first and second applications into XML format; and

- a third message transmitter coupled to transmit the translated messages onto the message bus.

13. The system of claim 12, the message tee further comprising:

- a third receiver, operable in the intercept mode, coupled to receive XML formatted messages transmitted to one of the first and second applications from the message bus; and

- a second translator for translating the received messages from XML format into the point-to-point format.

14. The system of claim 1, the test controller comprising an interface coupled to a GUI-based test tool whereby the test controller is programmable through the GUI-based test tool.

15. The system of claim 1, the message validation criteria comprising a regression baseline set of messages.

16. The system of claim 1, the message validation criteria comprising specification of a message element to be ignored by the means for comparing.

17. The system of claim 1, the message validation criteria comprising specification of a message element to be matched by the means for comparing.

18. A control interface for testing message flow in an enterprise application integration (EAI) message bus environment, comprising:

a first transmitter for transmitting first message selection criteria to a message collector coupled to the message bus whereby the message collector receives messages transmitted among enterprise applications on the message bus and identifies messages which meet the first message selection criteria;

a second transmitter for transmitting message validation criteria to a message validator whereby the message validator compares the messages identified by the message collector against the message validation criteria; and

a receiver for receiving results of the comparison by the message validator.

19. The control interface of claim 18, further comprising a second transmitter for transmitting test message criteria to a message generator in response to which the message generator transmits a test message onto the message bus.

20. The control interface of claim 18, further comprising a third transmitter for transmitting second message selection criteria and response rules to a message

responder whereby the message responder identifies messages received from the message bus which meet the second message selection criteria and, in response to an identified message, transmits a test message, generated according to the response rules, onto the message bus, the message responder appearing to enterprise applications on the message bus as a predetermined enterprise application.

21. The control interface of claim 18, further comprising a fourth transmitter for transmitting control signals to a message tee coupled to the message bus and transparently interposed between first and second off-bus, point-to-point applications, the control signals directing the message tee to operate in at least one operating mode selected from a listen mode, an intercept mode and a pass-through mode.

22. The control interface of claim 18, further comprising an interface coupled to a GUI-based test tool whereby:

- the control interface is programmable through the GUI-based test tool; and
- the control interface transmits results of the comparison by the message validator to the GUI-based test tool.

23. The control interface of claim 18, the message validation criteria comprising at least one regression baseline message.

24. The control interface of claim 23, the at least one regression baseline message comprising a message template.

25. The control interface of claim 24, the message template derived from a previously received and stored message.

26. The control interface of claim 18, the message validation criteria comprising specification of a message element to be ignored by the message validator.

27. The control interface of claim 18, the message validation criteria comprising specification of a message element to be matched by the message validator.

28. A method for testing message flow in an enterprise application integration (EAI) message bus environment, comprising:

- generating first message selection criteria;
- generating message validation criteria;
- receiving messages transmitted among enterprise applications on a message bus;
- identifying received messages which meet the first message selection criteria;
- comparing identified messages against the message validation criteria;
- and
- transmitting results of the comparison to a user.

29. The method of claim 28, further comprising simulating a predetermined enterprise application.

30. The method of claim 29, wherein simulating the predetermined enterprise application comprises:

- receiving second message selection criteria;
- receiving messages transmitted among enterprise applications on the message bus;
- identifying received messages which meet the second message selection criteria; and
- transmitting test messages onto the message bus in response to messages which meet the second message selection criteria.

31. The method of claim 28, wherein generating first message selection criteria comprises generating first message selection criteria from message templates.

32. The method of claim 28, wherein generating message validation criteria comprises generating message validation criteria from message templates.

33. The method of claim 28, further comprising transparently listening to messages in a point-to-point format between first and second off-bus applications.

34. The method of claim 33, further comprising:

translating the point-to-point formatted messages into XML formatted messages; and

transmitting the XML formatted messages onto the message bus.

35. The method of claim 34, further comprising:

receiving XML formatted messages from the message bus directed towards one of the first and second off-bus applications;

translating the XML formatted messages into point-to-point formatted messages; and

transmitting the point-to-point messages to the one of the first and second off-bus applications.

36. The method of claim 28, further comprising programming the generation of the first message selection criteria and the message validation criteria through a GUI-based test tool.

37. The method of claim 28, wherein generating the message validation criteria comprises generating the message validation criteria from a regression baseline set of messages.

38. The method of claim 28, wherein generating the message validation criteria comprises specifying message elements to be ignored when comparing identified messages against the message validation criteria.

39. The method of claim 28, wherein generating the message validation criteria comprises specifying message elements to be matched when comparing identified messages against the message validation criteria.

40. A computer program product of a computer readable medium usable with a programmable computer, the computer program product having computer-readable code embodied therein for testing message flow in an enterprise application integration (EAI) message bus environment, the computer-readable code comprising instructions for:

- generating first message selection criteria;
- generating message validation criteria;
- receiving messages transmitted among enterprise applications on a message bus;
- identifying received messages which meet the first message selection criteria;
- comparing identified messages against the message validation criteria;
- and
- transmitting results of the comparison to a user.

41. The computer program product of claim 40, further comprising instructions for simulating a predetermined enterprise application.

42. The computer program product of claim 41, wherein instructions for simulating the predetermined enterprise application comprise instructions for:

- receiving second message selection criteria;
- receiving messages transmitted among enterprise applications on the message bus;
- identifying received messages which meet the second message selection criteria; and
- transmitting test messages onto the message bus in response to messages which meet the second message selection criteria.

43. The computer program product of claim 40, wherein instructions for generating first message selection criteria comprise instructions for generating first message selection criteria from message templates.

44. The computer program product of claim 40, wherein instructions for generating message validation criteria comprise instructions for generating message validation criteria from message templates.

45. The computer program product of claim 40, further comprising instructions for transparently listening to messages in a point-to-point format between first and second off-bus applications.

46. The computer program product of claim 42, further comprising instructions for:
translating the point-to-point formatted messages into XML formatted messages; and
transmitting the XML formatted messages onto the message bus.

47. The computer program product of claim 46, further comprising instructions for:
receiving XML formatted messages from the message bus directed towards one of the first and second off-bus applications;
translating the XML formatted messages into point-to-point formatted messages; and
transmitting the point-to-point messages to the one of the first and second off-bus applications.

48. The computer program product of claim 40, further comprising instructions for programming the generation of the first message selection criteria and the message validation criteria through a GUI-based test tool.

49. The computer program product of claim 40, wherein instructions for generating the message validation criteria comprise instructions for generating the message validation criteria from a regression baseline set of messages.

50. The computer program product of claim 40, wherein instructions for generating the message validation criteria comprise instructions for specifying message elements to be ignored when comparing identified messages against the message validation criteria.

51. The computer program product of claim 40, wherein instructions for generating the message validation criteria comprise instructions for specifying message elements to be matched when comparing identified messages against the message validation criteria.

52. A data processing communications device, comprising:

- a first interface coupled to exchange data with a data-source off-bus application;

- a second interface coupled to exchange data with a data-target off-bus application, the data-source and data-target off-bus applications exchanging point-to-point communications in a first format;

- a translator coupled to a message bus on which messages are exchanged in a second format, the translator operable to:

- receive point-to-point communications in the first format from the first and second interfaces, translate the point-to-point communications into messages of the second format and transmit the messages onto the message bus; and

- receive messages in the second format from the message bus, translate messages into point-to-point communications of the first format and transmit the point-to-point communications to at least one of the first and second interfaces.

53. The device of claim 52, further comprising a control interface coupled to receive control signals to configure the device in an operating mode selected from a listen mode, an intercept mode and a pass-through mode.

54. The device of claim 53, further comprising a plurality of programmable switching devices responsive to the control signals.

55. The device of claim 54, wherein, when the device is in the listen mode, the plurality of switching devices are configured to permit the point-to-point communications from the data-source off-bus application to the data-target off-bus application to be transmitted substantially unimpeded and to permit the translator to receive and translate the point-to-point communications.

56. The device of claim 54, wherein, when the device is in the intercept mode, the plurality of switching devices are configured to permit the translator to receive and translate the point-to-point communications from the data-source off-bus application into the message format without the data-target receiving the point-to-point communications.

57. The device of claim 56, wherein, when the device is in the intercept mode, the plurality of switching devices are configured to permit the translator to receive and translate a message format from the message bus, translate the message format into the point-to-point communications and transmit the point-to-point communications to the data-target application.

58. The device of claim 57 further comprising an on-bus application, wherein, when the device is in the intercept mode, the on-bus application is operable to correct an error in the point-to-point communications from the data-source off-bus application.

59. The device of claim 54, wherein, when the device is in the pass-through mode, the plurality of switching devices are configured to permit the point-to-point communications from the data-source off-bus application to the data-target off-bus

application to be transmitted substantially unimpeded and to prohibit the translator from receiving and translating the point-to-point communications.